

United States Department of the Interior
National Park Service**National Register of Historic Places
Registration Form**

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer to complete all items.

1. Name of Propertyhistoric name Pier 57

other names/site number _____

2. Locationstreet & number Eleventh Avenue at end of West 15th Street [] not for publicationcity or town New York [] vicinitystate New York code NY county New York code 061 zip code _____**3. State/Federal Agency Certification**

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this [X] nomination [] request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements as set forth in 36 CFR Part 60. In my opinion, the property [X] meets [] does not meet the National Register criteria. I recommend that this property be considered significant [] nationally [] statewide [X] locally. ([] see continuation sheet for additional comments.)


Signature of certifying official/TitleMay 9, 2004
DateNew York State Office of Parks, Recreation & Historic Preservation
State or Federal agency and bureau

In my opinion, the property [] meets [] does not meet the National Register criteria. ([] see continuation sheet for additional comments.)

Signature of certifying official/Title_____
Date_____
State or Federal agency and bureau**4. National Park Service Certification**

I hereby certify that the property is:

- [] entered in the National Register
[] see continuation sheet
[] determined eligible for the National Register
[] see continuation sheet
[] determined not eligible for the National Register

[] removed from the National Register

[] other (explain) _____

Signature of the Keeper

date of action

Pier 57
Name of Property

New York County, New York
County and State

5. Classification

Ownership of Property
(check as many boxes as apply)

- ☐ private
☐ public-local
☒ public-State
☐ public-Federal

Category of Property
(Check only one box)

- ☐ building(s)
☐ district
☐ site
☒ structure
☐ object

Number of Resources within Property
(Do not include previously listed resources in the count)

Contributing

Noncontributing

1

0

1

0

buildings
sites
structures
objects
TOTAL

Name of related multiple property listing

(Enter "N/A" if property is not part of a multiple property listing)

N/A

Number of contributing resources previously listed in the National Register

0

6. Function or Use

Historic Functions

(enter categories from instructions)

TRANSPORTATION: Water-related

COMMERCE/TRADE

Current Functions

(Enter categories from instructions)

VACANT/NOT IN USE

7. Description

Architectural Classification

(Enter categories from instructions)

N/A

Materials

(Enter categories from instructions)

foundation concrete

walls metal; brick; concrete

roof asphalt

other

Narrative Description

(Describe the historic and current condition of the property on one or more continuation sheets)

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7. Narrative Description¹

Pier 57 is located on the Hudson River along Eleventh Avenue at the end of West 15th Street in Manhattan, New York County. It is located south of the Chelsea Piers (piers 59-62). It was constructed as an ocean liner pier in 1950-54 by the engineering firm of Madigan-Hyland using the innovative design of civil engineer Emil H. Praeger. The New York City Department of Marine and Aviation oversaw the construction. The pier and head house substructure consists of three floating, reinforced concrete caissons anchored in place making it the only pier in New York City with a basement. Pier 57 retains a high degree of historic integrity. The pier shed is of steel frame construction clad in metal. The head house building (also known as the bulkhead shed) is of steel frame with a brick façade. While part of the head house has been renovated, the pier shed and foundation remain largely unchanged. The pier remained in its original use until the late 1960s when the Grace Line moved to New Jersey. It then became a bus depot for the Metropolitan Transit Authority. The 300,000-square-foot pier has been vacant since 2003 when the bus depot left, but plans are underway for an adaptive reuse of the structure.

The original pier at this site was destroyed by fire in 1947. The new "T" shaped pier was completed in 1954. The finger extending into the river is 725 feet long and 150 feet wide; the portion along the shore is 375 feet long and also 150 feet wide. (John Lowe, 7).

The problem faced by the designer of the new pier was the limited load capabilities of the silt beneath the site. The old pier had used about 3,000 timber piles, but these had not gone to a hard surface (bedrock was far below) and were not considered sufficient to carry the new load. However, their removal would have destabilized the underlying silt, which the piles had helped consolidate. Praeger's design thus cut off the piles at a low elevation (34 feet below mean tide) and left them in place. (Flagg and Raber).

Instead of relying on the usual piles, 90 percent of the dead weight of the pier is supported by the buoyancy of three hollow concrete boxes, two forming the substructure of the pier proper and one, at right angles to the other two, supporting the head house. These boxes, or caissons, were constructed of heavily reinforced concrete using a number of innovative techniques, in an abandoned clay pit in Haverstraw, New York. Each of the two boxes under the pier is 360' long, 82' wide, and 33' high and contains 2,000 tons of reinforcing steel. The total weight of each box is 27,000 tons. The box beneath the base of the head house is 367' long, 87' wide, and 28' tall, weighing 19,000 tons.

After the caissons were formed, the construction pit at Haverstraw was flooded, and the caissons were floated down the Hudson River for transfer to the pier site. There, they were sunk onto the dredged-out site, where a sand and gravel mat had been prepared to receive them; the mat supports the rest of the dead load. The bed was consolidated by the piles pounded in many years previously, by "sand piles" or "sand drains" placed in the

¹ Much of the text for the Narrative Description is from Thomas Flagg and Michael Raber, "NYS Building-Structure Inventory Form on Pier 57." (On file at NYS Office of Parks, Recreation and Historic Preservation, Field Services Bureau, Waterford, NY., May 1990) and John Lowe III, *Floating Caisson Foundations - Steel Piles with Attachments*. A paper presented during the visit to the U.S.S.R. by the Highway Research Board's American Exchange Delegation of Soil Specialists (September 15-October 5, 1959).

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underlying silt, and by the weight of the water-filled boxes. The boxes are held in place by 30-inch-diameter steel dowels driven into the river bottom through openings at 40-foot intervals along the sides of the boxes. As the boxes were dewatered, they took on the load of the superstructure (the pier deck and shed, and the head house structure) being built on top of them. (Flagg and Raber).

The rectangular-plan, flat-roofed head house faces onto Eleventh Avenue. The east elevation of the head house is clad in brick with stone trim at the window openings. The first floor has regularly spaced door openings with rolling metal shutters. The central section of the head house is notable for its bank of tall window openings. The building name MARINE & AVIATION PIER 57 appears in stainless steel lettering above this opening. Wings extend to the north and south of the central section. These feature horizontal bands of windows at the upper floors.

The first floor of the head house features a large stair that leads to a hall and offices on the second floor. The offices are located at the front (east) part of the head house. The lower level of the head house contains a driveway reached by ramps from the street and was intended for delivery of passengers by taxi or car, separating this traffic from the freight traffic arriving at the pier by truck. (Flagg and Raber). There is also an escalator for passengers and a baggage conveyor that comes up from the lower level to the first floor.

The long, flat-roofed pier shed is two stories tall above a basement. It is of steel frame construction. The pier shed is 32 bays long on the north and south sides. Each bay along the pier shed has vertical lift doors on both the first and second floors so that trucks could drive from the pier to load and unload freight from the ships. Foam tiles have been added to the interior face of these doors. The bays on the north and south facades of the pier shed also feature regularly spaced steel sash. Attached along the roof edge on the north and south sides is a metal framework originally used for cargo handling. The roof was designed for storage of bulky cargo, parking for cars, and landing space for helicopters. The west end of the pier has rounded, streamlined corners clad in steel. The name PIER 57 appears in large stainless steel letters on the upper band.

The pier shed interior is an open, warehouse-like space with a concrete floor and steel support columns. A center truck ramp, located in the eastern half of the pier shed, extends to each floor as do large freight elevators. Original floor plans indicate some of the historic uses of the pier shed spaces. For example, the first floor of the pier shed shows two truck lanes and shop space at the far west end and offices for the pier superintendent, foreman, stevedore, delivery clerks, and timekeepers at the eastern end.

The concrete caissons with their reinforced concrete beams and piers are visible throughout the basement. The hollow boxes under the pier provide significant storage space and are served by elevators.

Name of Property

8. Statement of Significance**Applicable National Register Criteria**

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- ☐ **A** Property associated with events that have made a significant contribution to the broad patterns of our history.
- ☐ **B** Property is associated with the lives of persons significant in our past.
- ☒ **C** Property embodies the distinctive characteristics of a type, period, or method of construction or that represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- ☐ **D** Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark "x" in all boxes that apply.)

- ☐ **A** owned by a religious institution or used for religious purposes.
- ☐ **B** removed from its original location
- ☐ **C** a birthplace or grave
- ☐ **D** a cemetery
- ☐ **E** a reconstructed building, object, or structure
- ☐ **F** a commemorative property
- ☐ **G** less than 50 years of age or achieved significance within the past 50 years

Narrative Statement of Significance

(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References**Bibliography**

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS):

- ☐ preliminary determination of individual listing (36 CFR 67) has been requested.
- ☐ previously listed in the National Register
- ☐ previously determined eligible by the National Register
- ☐ designated a National Historic Landmark
- ☐ recorded by historic American Building Survey

- ☐ recorded by Historic American Engineering Record

Areas of Significance:

(Enter categories from instructions)

ENGINEERING**Period of Significance:**1950-1954**Significant Dates:**1952, 1954**Significant Person:**N/A**Cultural Affiliation:**N/A**Architect/Bullder:**Praeger, Emil H.Madigan-Hyland, Engineers

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8. Statement of Significance²

Constructed in 1950-54, Pier 57 on the Hudson River in Manhattan is significant under criterion C for its importance in engineering history. Unlike conventional methods of pier construction, this structure is supported primarily by the buoyancy of three hollow concrete boxes, which form the substructure of the pier and head house. They were constructed at an abandoned clay pit in Haverstraw, New York and floated down the Hudson River some 30 miles to the construction site, where a sand and gravel mat had been prepared to receive them. Designed by the prominent civil engineer Emil H. Praeger of the firm of Madigan-Hyland, this innovative structural solution was a response to the limited load-bearing capacity of the silt at the river bottom and the timber piles which remained after the destruction by fire of an earlier pier. The construction of the pier was supervised by the New York City Department of Marine and Aviation. Pier 57 was widely publicized in the engineering journals at the time of its construction, and continues to be seen by the profession as a significant innovation in the design of underwater foundations.

On 29 September 1947, Pier 57, a Grace Line Pier on the Hudson River between 15th and 16th streets caught fire. The fire started underneath the pier in the creosote soaked piles. It was suspected that a tugboat had discharged some hot coals just prior. The fire destroyed the \$5 million pier and was called the worst pier fire in the city's history. Over 200 firefighters responded, along with several fireboats including the still active Firefighter and the now retired but still functioning John J. Harvey (NR-listed 06-16-00). One hundred forty firefighters were injured, most due to smoke inhalation, as the fire burned for over two days, creating billowing clouds of black smoke that caused the West Side Highway and several other streets to be closed. For a period, the fire threatened a second Grace Line pier, 58, directly north, as well as Pier 56 just south. However, both piers escaped damage. Two engineers were injured when the head house portion of the pier collapsed without warning on October 1. (John Doswell, 2003, 1-2).

Within months, planning for a replacement pier had begun, this time to be built with a much more fire-retardant type of construction. The concept called for a pier supported, not by wood piles, but by three giant concrete caissons. This was inspired by the successful use of floating concrete breakwaters during the invasion of Normandy during World War II. This idea was the brainchild of Emil H. Praeger, former Chief of the Navy Bureau of Design. (Doswell, 2).

Two years later, the Commissioner of Marine & Aviation, Edward F. Cavanagh, Jr., announced the beginning of work on the new pier. At the time, Pier 57 was the largest dock construction project ever undertaken by the City of New York. The original estimate was \$7,500,000, of which \$4,500,000 was allocated for the substructure. The new design would allow passenger traffic to drive down into the basement alongside the bulkhead, unload,

² Much of the text for the Statement of Significance is from John Dowell, "Pier 57's construction was an engineering marvel," *The Villager*, Volume 73, Number 21, (September 24-30, 2003, Doswell based on numerous NYC newspaper articles from 1947 to 1954 compiled by Norman Brouwer); and John Lowe III. *Floating Caisson Foundations - Steel Piles with Attachments*. A paper presented during the visit to the U.S.S.R. by the Highway Research Board's American Exchange Delegation of Soil Specialists, (September 15-October 5, 1959).

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and be taken by elevator to a grand waiting hall on the second level. Meanwhile trucks with freight would travel by large ramps directly to the second level without encountering passengers. The two other basements were to be used for freight storage, to be accessed by giant elevators. (Doswell, 2).

Wharfage space on the New York City waterfront was at a premium, thus the Department of Marine and Aviation, then owners of Pier 57, desired that the new pier have much more capacity than the old pier. This indicated a pier with several levels and much higher unit loading than the old pier. (Lowe, 7).

Work began on August 30, 1950. After several speeches by city fathers at 11 a.m., dredges began to remove the remnants of piles left over from the 1947 fire. (Doswell, 2). All that remained from the original pier after the fire was a forest of about 3,000 timber piles. Subsurface explorations at the site indicated bedrock at a depth of about 100 feet along the shore and about 400 feet at the offshore end of the pier. The stratum immediately below harbor bottom is composed of soft to medium stiff Hudson River silt; it varies from 60-foot thickness at the shoreline to 200-foot thickness at the offshore end of the pier. (Lowe, 7).

To carry a new, heavier pier on a conventional pile foundation, exceedingly long piles, particularly at the offshore end, would have been required. These piles would have to penetrate through the silt and some distance into firm sand. The new piles would have to be located between the many timber piles or the timber piles would have to be pulled. The timber piles could not be used in conjunction with the new piles due to the difference in stiffness between the silt and the underlying firm material supporting the two different types of piles. (Lowe, 8).

It was decided instead that by using a floating caisson-type foundation the need for long expensive piles for the finger portion would be eliminated; the existing timber piles could be utilized to carry a load proven by their past performance and the difference between the capacity of the wooden piles and the load imposed by the new pier would be carried by buoyance of the caissons. (Lowe, 8). Ultimately, 2,300 old piles were cut at the mud line via a large underwater chain saw. They were then covered with 2 feet of gravel, which was the base for two of the three concrete boxes. (Doswell, 2).

Meanwhile a site was needed to build the concrete boxes. Eventually a man-made lake next to the river near Haverstraw, about 38 miles up river from the City, was selected as the construction site. It took 20 days to pump 210,000,000 gallons of water out of the lake, until a dry bed remained. A concrete work floor was then laid, and casting of the concrete caissons began. The dimensions of these boxes were staggering. Box number 1, destined to become the base of the head house alongside the bulkhead, was 367 feet long by 87 feet wide. It was 28 feet tall and, when complete, would weigh 19,000 tons. If positioned vertically, this structure would be as tall as a 36-story building. Boxes 2 and 3 were identical, designed to support the finger portion of the pier. Each of these two boxes was 360' long by 82' wide and almost 33' tall. Each weighed 27,000 tons. Altogether, 34,000 cubic yards of concrete were used. (Doswell, 2).

On July 29, 1952, the first box was floated down the river. Prior to that, the lake had been flooded by means of a 12" pipe that connected the lake bed to the nearby river. At the completion of flooding, the three boxes were now afloat, held in position with lines. A break in the dike between the lake and river was dug, and a channel

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dredged. Six Moran tugboats moved in and took box number 1 under tow. It was expected that it would take almost two days to move this giant object from Haverstraw to its final location at the pier site. Instead, it took only 13-1/2 hours, disappointing photographers who had hoped for a daylight arrival the following day. Once in position alongside the bulkhead, box number 1 was filled with water and sunk. (Doswell, 2).

About a month later, the larger caissons 2 and 3, which floated about 5 feet deeper than the water, were floated down river in like manner. Box number 2 scraped the bottom at one point on its journey but box 3 made it all the way without grounding. By September 18, 1952, all three sections were in place. Boxes 2 and 3 rested on the gravel beds that had been prepared almost two years earlier. As these caissons were sunk, the weight pressed the gravel bed down by a full foot, a situation that was expected by the designers. (Doswell, 3).

Now 146-foot long girders, 11 feet tall and 2 feet wide, were laid crosswise over caissons 2 and 3, forming the base for the floor of the pier. The girders extended 33 feet wider on each side than the boxes themselves. As weight was added by construction, the caissons were gradually pumped out. Ultimately the buoyancy of the caissons would support 90 percent the finished pier. (Doswell, 3).

All progressed well until 26 March 1953, when an explosion and fire killed two workers underneath the pier floor. Gasoline had leaked into the water and was ignited by a broken light bulb. The third worker survived but was in serious condition. (Doswell, 3).

On 15 February, 1954, interior work in the head house and pier shed began, and finally, on 29 December, 1954, the new pier was opened by Mayor Wagner and Fire Commissioner Cavanagh, who had been Chief of Marine and Aviation when work had started four years prior. The only glitch of the opening ceremony was the discovery that Cavanagh's name had been misspelled as "Cavanaugh" on the dedication plaque. In the end, the innovative new pier cost \$12 million. (Doswell, 3).

Civil engineer Emil Praeger (1882-1973) was a 1915 graduate of Rensselaer Polytechnic Institute. In World War II he designed the rectangular floating concrete breakwaters, code named "Phoenix," which were constructed in England and floated across the English channel to form a protected harbor for the invasion of Normandy. He was a structural designer of renovations to the White House under Truman. He designed the Tappan Zee Bridge spanning the Hudson River at Tarrytown, NY, the Nebraska State Capitol, Shea and Dodger Stadiums, and the world's largest telescope in Arecibo in Puerto Rico. He was a leader of efforts to repair broken dikes at Zeeland in the Netherlands. (Rensselaer Polytechnic Institute, Rensselaer Alumni Hall of Fame website, 1996-2003).

The structural system used in Pier 57 is unique for New York City; it has never been repeated here for a shipping pier. The system is ingenious and answered very well as a solution to the problems of this particular site. As an engineering achievement, it was celebrated in the journals when it was built, and is still considered a major achievement by the profession. (Duffy and Miller 1986: 86).

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The Tappen Zee Bridge (NR-eligible), which officially opened in 1955, is similar to Pier 57 in that it is built upon a floating caisson type foundation. About 90% of the dead load of the pier and 70% of the dead load of the bridge are carried by buoyancy. The Tappen Zee Bridge is the longest bridge in New York State and one of the longest bridges in the entire U.S. Its design incorporates eight concrete caissons supported on steel piles which actually serve as buoyant underwater foundations. The bridge was the first permanent bridge in America to actually float on air by incorporating this design. Like Pier 57, Praeger used these "air cushion" supports because the Hudson River bottom in this area consists of deep layers of mud and silt before bedrock can be reached.

Today, Pier 57 stands alone as the only pier in New York City to be built on floating concrete boxes. It attracted considerable attention in the engineering community when first built, and is still well remembered for its innovative design features. It was, in fact, a complete departure from conventional methods of pier construction. (Flagg and Raber). The *New York Times* reported that the project "aroused world-wide interest" for its concrete substructure.

Praeger's structural solution was a great success but the nature of passenger and freight shipping soon began to change. The pier was built just five years prior to the advent of daily commercial jet service to Europe. By the end of the decade, the need for large passenger and freight piers had ended, as jet travel replaced the ocean liners and containerized shipping in New Jersey and Brooklyn made break-bulk cargo handling at Manhattan's west-side piers obsolete. Most of the passenger liner piers along the Hudson River are long gone. Pier 57 stands as an important reminder of the final days of passenger ship travel in New York City.

Sometime after the W.R. Grace Company sold its shipping line in 1969, the pier was employed as a bus garage and maintenance shop by the Metropolitan Transit Authority. This use ended in 2003. (Doswell, 3). The Hudson River Park Trust, which operates a five-mile stretch of Manhattan waterfront from Battery Park to 59th Street, recently announced that it was seeking proposals from potential developers and institutions for adaptive re-use of Pier 57 preferably for a combination of cultural, educational, and maritime uses.

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9. Bibliography

- Buckley, J.M., and E.A. Verpillot. "New York's Pier 57 founded on two 27,000-ton reinforced concrete boxes." *Civil Engineering*, March 1952, 36-42.
- "City Aides View Concrete Box Pier, Believed to be the First of its Type." *New York Times*. 17 October 1951.
- Construction of New Pier No. 57, North River, Borough of Manhattan*. Construction drawings by Madigan-Hyland, Engineers, New York. Drawings are signed by Clinton F. Lloyd and Thomas J. Durkin, 1951-1954. On file at the offices of the Hudson River Park Trust.
- Doswell, John. "Pier 57's construction was an engineering marvel." *The Villager*, Volume 73, Number 21, September 24-30, 2003. Doswell based on numerous NYC newspaper articles from 1947 to 1954 compiled by Norman Brouwer. See also [www.doswellproductions.com/Pier 57History.pdf](http://www.doswellproductions.com/Pier%2057History.pdf)
- Duffy, Francis J. and William H. Miller. *The New York Harbor Book*. Falmouth, ME: TBW Books, 1986.
- "Emil Praeger, 81, Engineer is Dead." *New York Times*. 17 October 1973.
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- Quinn, DeF. Alonzo. *Design and Construction of Ports and Marine Structures*. New York: McGraw-Hill, 1961.
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- "17,000-Ton Pier Box Awaits River Trip." *New York Times*. 27 July 1952.
- "Society Chooses 'Civil Engineer of Year'." *New York Times*. 13 May 1953.
- "13,550-Ton Pier Box Starts Down River." *New York Times*. 30 July 1952.

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Tomlinson, M.J. *Foundation Design and Construction*. New York: John Wiley, 1963, 273-275.

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10. Geographical Data

Acreage of Property approx. 2.75 acres

UTM References

(Place additional UTM references on a continuation sheet.)

1 | 1 | 8 | | 5 | 8 | 3 | 4 | 9 | 0 | | 4 | 5 | 1 | 0 | 5 | 4 | 0 |
Zone Easting Northing

3 | 1 | 8 | | | | | | | | | | | | | |
Zone Easting Northing

2 | 1 | 8 | | | | | | | | | | | | | |

4 | 1 | 8 | | | | | | | | | | | | | |

Verbal Boundary Description

(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification

(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Kathy Howe, Historic Preservation Specialist

organization NYS Office of Parks, Recreation and Historic Preservation date 01-21-04
Field Services Bureau

street & number P.O. Box 189, Peebles Island telephone 518-237-8643, ext. 3266

city or town Waterford state NY zip code 12188

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

A USGS map (7.5 or 15 minute series) indicating the property's location

A Sketch map for historic districts and properties having large acreage or numerous resources.

Photographs

Representative black and white photographs of the property.

Additional Items

(Check with SHPO or FPO for any additional items)

Property Owner (Complete this item at the request of the SHPO or FPO)

name

street & number telephone

city or town state zip code

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 et seq.)

Estimated Burden Statement: public reporting burden for this form is estimated to average 18.1 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, D.C. 20503

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10. Geographical Data

Verbal Boundary Description

The nomination boundary for Pier 57 is indicated on the attached map.

Boundary Justification

The nomination boundary is drawn to encompass the entire engineering structure including the underwater foundation, pier shed, and head house.

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Additional Documentation

List of black and white photographs

Pier 57

New York County, New York

Photographer: Kathy Howe

Date: 2/24/04

Negatives on file: NYS Office of Parks, Recreation and Historic Preservation

1. East elevation of head house, center section, facing west.
2. South elevation of pier shed and head house, also east elevation of head house, facing northwest.
3. North elevation of pier shed and head house; also partial east elevation of head house, facing southwest.
4. West elevation, mezzanine level of pier shed, facing northeast.
5. Stairhall from first floor of head house, facing west.
6. Second floor hall with offices on either side, in head house, facing north.
7. Vehicle ramp in basement of head house, south end of building, facing east.
8. Caisson ("Box 3") in western half of basement beneath pier, facing southeast.
9. First floor of pier shed, facing east.

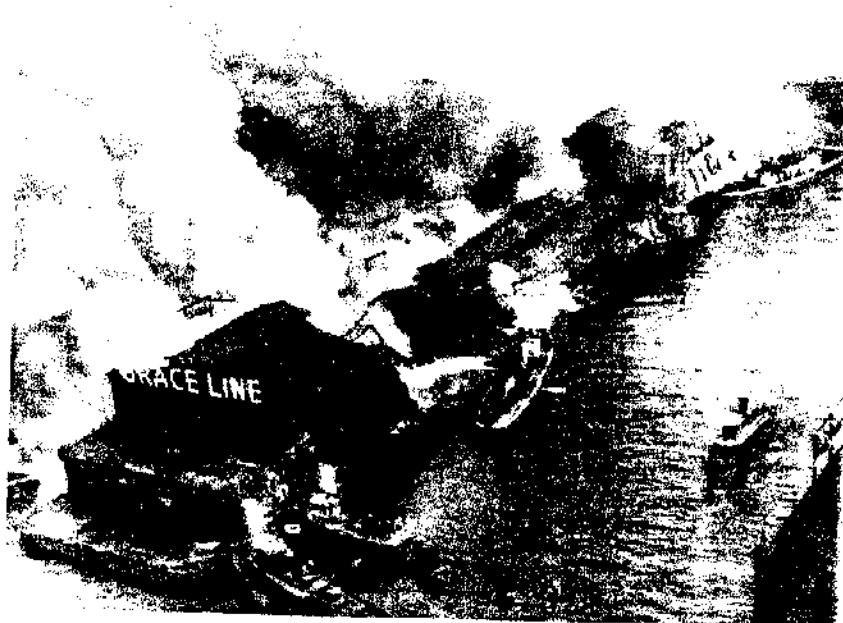
Historic Photographs

From [www.doswellproductions.com/Pier 57History.pdf](http://www.doswellproductions.com/Pier_57History.pdf)

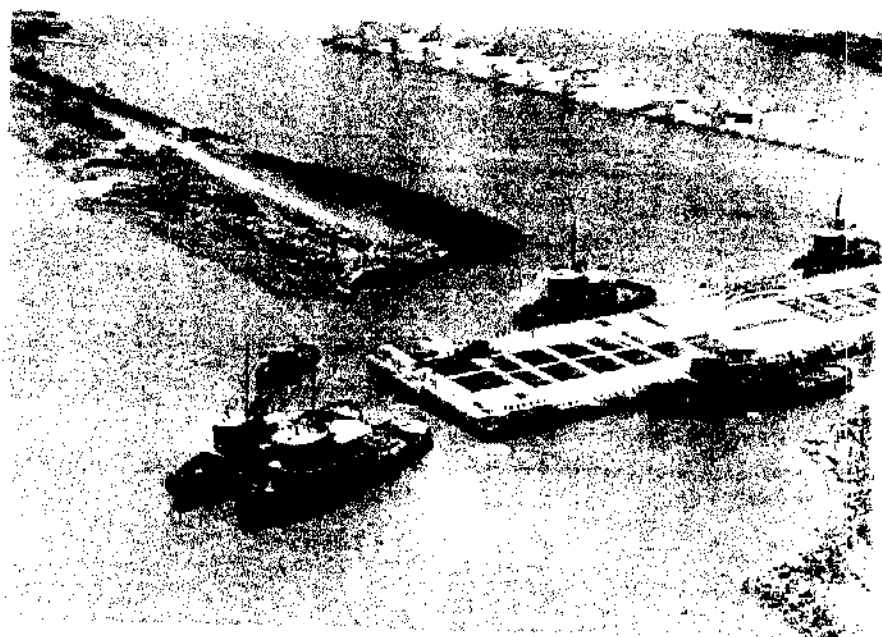
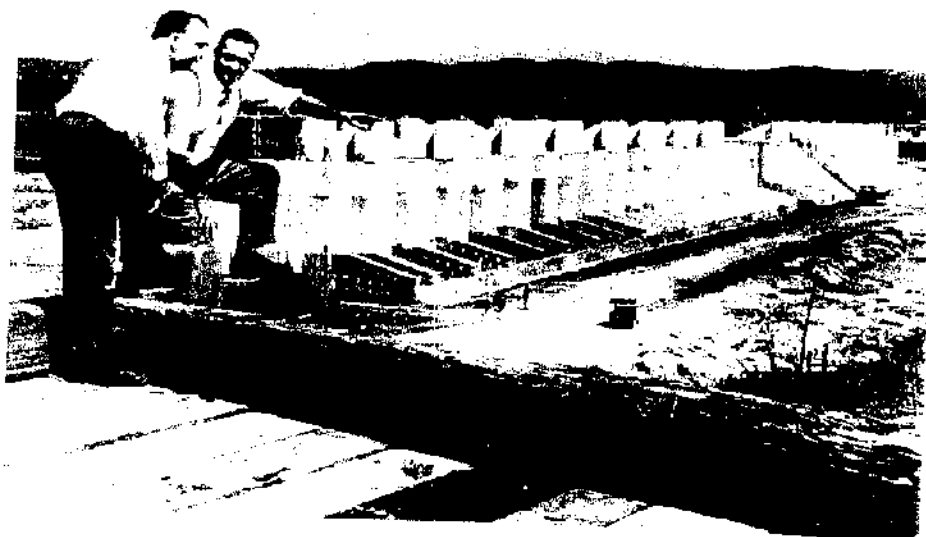
- 1.1 Original Pier 57 (Grace Line) on fire, September 29, 1947.
- 1.2 Men overlooking site at Haverstraw where the concrete caissons were made, ca. 1952.
- 1.3 Tugboats guide the floating caissons on their destination from Haverstraw to the pier site, July 1952.
- 1.4 Construction of Pier 57, ca. 1953.
- 1.5 Pier 57, ca. 1954.

Periodical

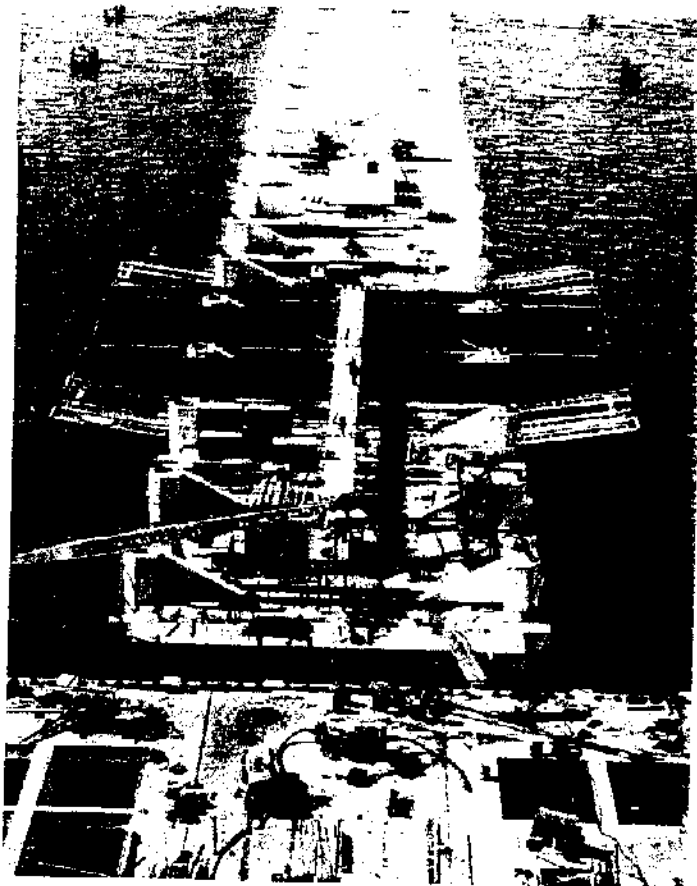
"Buoyant-box foundations to carry New York Pier," *Engineering News Record*, January 11, 1951, p. 46.



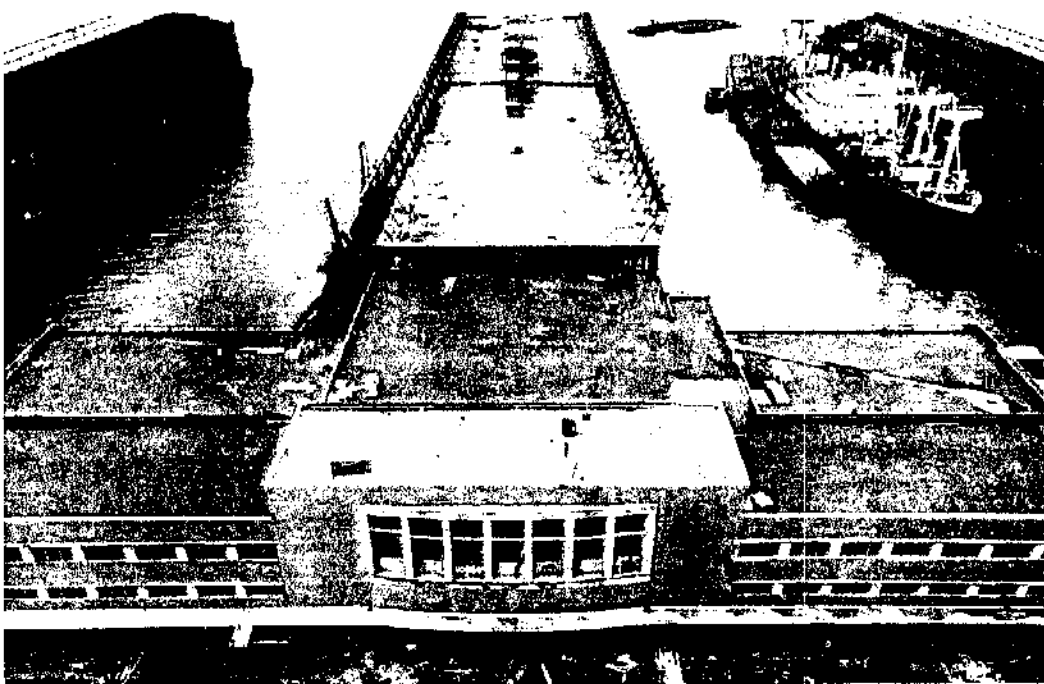
1.2



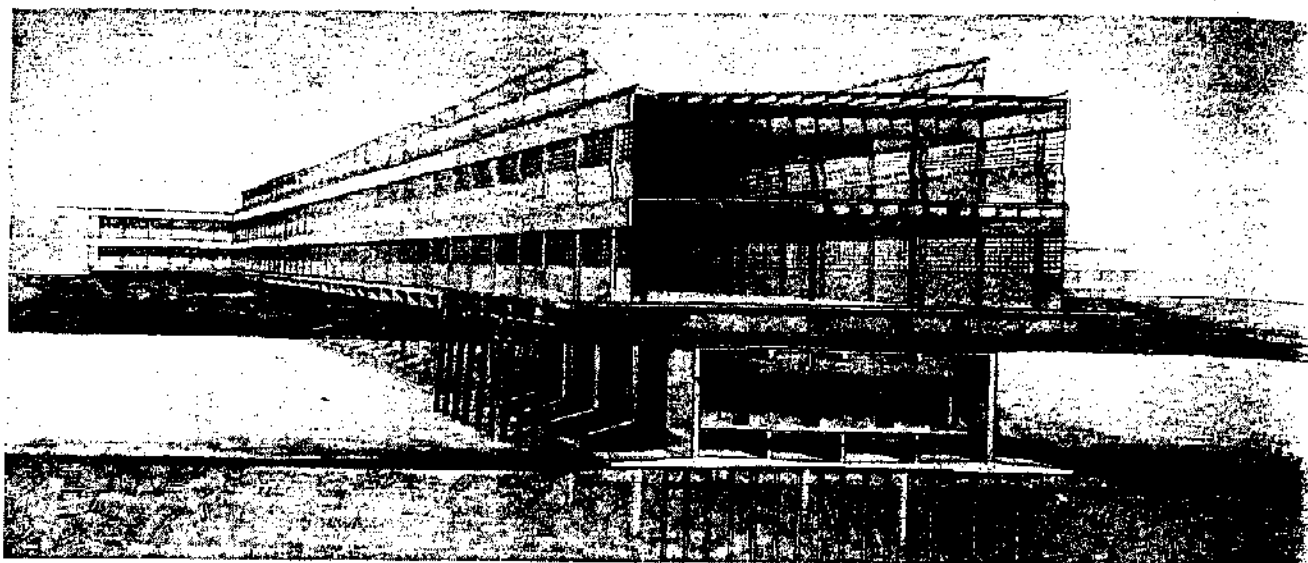
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1.4



1.5



THE NEW PIER 57—now under construction—is a complete departure from the conventional. Concrete and steel, it won't bur marine borers won't touch it, and maintenance will be minor. What's more, its foundation floats, its soil base will be sand-drain stabilized and its main floor will be framed in prestressed concrete.

Buoyant-box foundations to carry New York Pier

THERE IS TO BE something radically new on New York City's waterfront. Pier 57 (burned down in September, 1947) is to be replaced by a fireproof concrete and steel structure that will have a buoyant-hollow-box foundation resting on sand-drain-consolidated silt and topped by a prestressed concrete beam-and-girder deck system.

About the only resemblance the finished new North River structure will bear to the old will be its Grace Line markings. It is to have about twice the floor area and cubage of the former pier. It is estimated to cost about \$7,500,000—no more than would a pier of conventional design.

Foremost of its many unusual features are the pier's three submerged, reinforced concrete boxes designed to carry—by their buoyancy—about 90% of the total dead load. This will leave about a 10% negative buoyancy, plus the structure's live loads (including wind, tide-pull on moored ships and impact), to be transmitted to and carried by the underlying silt.

It won't be normal river-bottom silt.

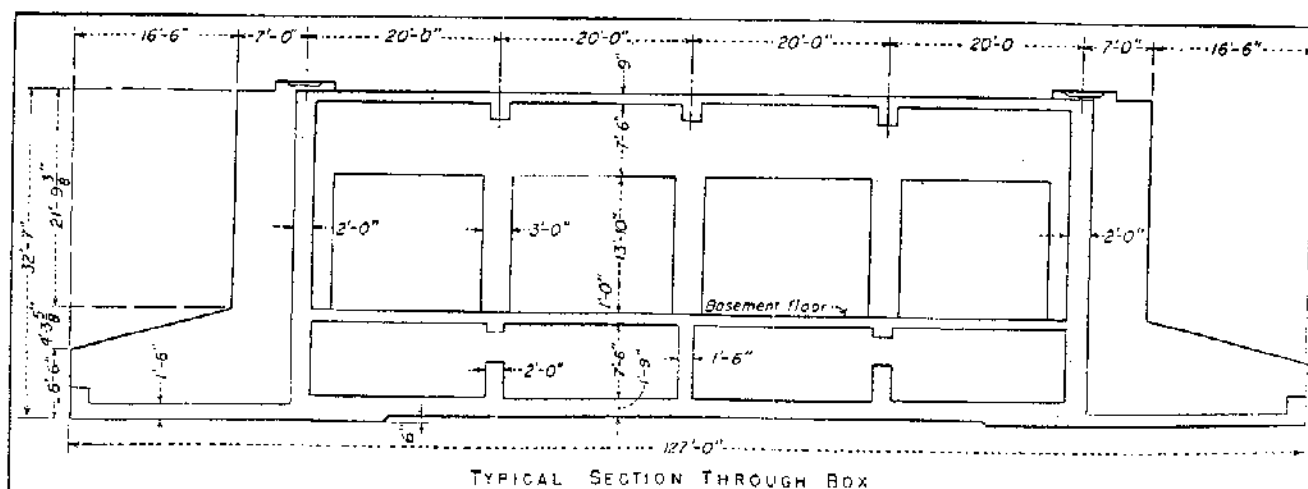
First of all, it already has in it some 3,000 timber piles which are being cut off at El. -34.0 below mlw. These piles long carried the old pier and have consolidated the silt some-

what. Design of the new pier counter plates use of them, figures they transmit the live load to the silt when the new pier is fully loaded.

Secondly, the already somewhat settled silt will be consolidated further during construction by vertical sand drains. Some 216 sand drains 18-in. in dia will be sunk on 20-in. centers. They'll reach 50 ft down into the silt to drain and consolidate it about 90% in an estimated 53 days under a temporary overload.

▪ **Pontoon design**—Each of the floating boxes, or pontoons, to carry the pier will measure 350x82 ft and will be 34 ft deep. Their bottom slabs will project 22½ ft each side to give 127-ft total width of bottom bearing surface. Box dimensions are given in the accompanying drawing.

Tops of the pontoons will always be submerged (at El. -1.0 below mlw).



IT FLOATS—This box and the two others like it will carry by their buoyancy some 90% of the total structure's dead load. Reinforced concrete frames brace the boxes and their extended bottom slabs. Basement is storage space not previously available.

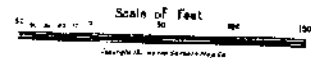
PIER 57, NEW YORK, N.Y. AND ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

DATE 07-26-2007 BY SP-5 JTB

57

PIER 57, NEW YORK, N.Y. AND ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

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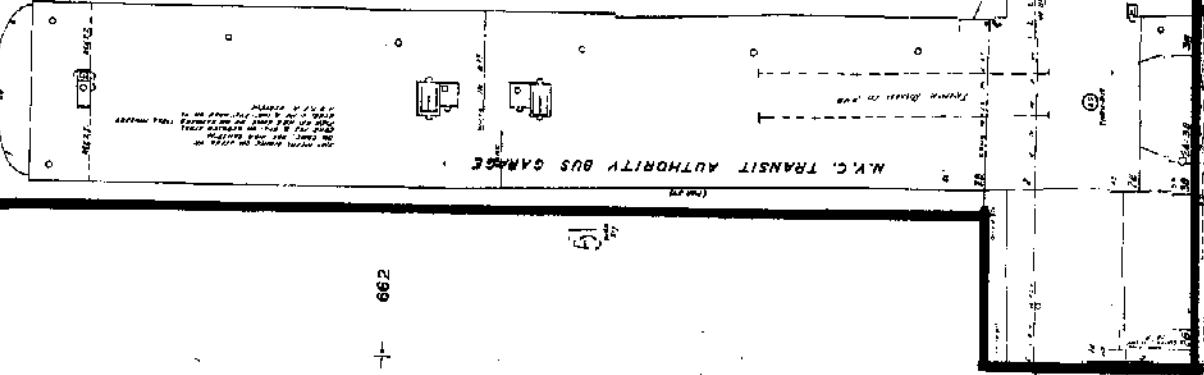
662

651 + 662

Pier 57
Eleventh Avenue at West 15th Street
New York County, New York

Sanborn Map, c. 2000

N.Y.C. TRANSIT AUTHORITY BUS GARAGE



HUDSON
RIVER

INTERNATIONAL MERCANTILE MARINE PIERS

ELEVENTH AVE

AVENUE

ELEVENTH

DE LAETER
SQUARE

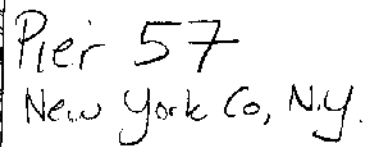
43

43

AVENUE

6265 IV SW
(CENTRAL PARK)

2 180 000 FEEB (N. J.) 11/83



Zone 18
Easting: 583490
4510

North wing: 4510540

USGS
1:24000
Jersey City Quad

690 000 FEET
(N. J.)

42'30'